

Abstract View


TIME-COURSE CHANGES OF DOPAMINE D₂ AND CB1 CANNABINOID RECEPTORS DURING COCAINE SELF-ADMINISTRATION

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It has been previously shown that D2R decrease after chronic cocaine abuse in humans (Volkow et al, 1997). CB1 cannabinoid receptors are also important modulators of dopamine (DA) activity in the mesocorticolimbic system (Maldonado et al. 2002). CB1 KO mice showed impaired cocaine self-administration (SA) compared to WT (Soria et al. 2005). The aim of this study was to evaluate the time-course changes of D2R and CB1 receptors in mice with a different history of cocaine SA, by using in vitro autoradiography (ARG). Mice were trained, to self-administer cocaine (1 mg/kg) under FR1 reinforcement and 6 different groups were examined: (1)Sham, (2)1 day of cocaine SA, (3)7-10 days of cocaine SA, (4)20 days of cocaine SA, (5)15 days of cocaine SA and 1 day of extinction, (6) 20 days of cocaine SA and 20 days of extinction. Mice that achieved the acquisition criteria (80% of stable responses during 3 consec days, 75% of discrim between the active and the inactive lever and a minimum of 5 infusions /session) were included in the study. In groups 3, 4, 5 and 6, mice showed a reliable cocaine SA, with clear active lever discrimination and a stable rate of cocaine intake. Interestingly, in group 5 the number of infusions increased significantly the first day of extinction as well as the number of lever presses in the active and inactive levers. An increase of responses in inactive lever vs the active was observed which did not diminish after 20 days of extinction, although a progressive decrease was observed along the 20 days (group 6). After the behavioural experiment, we assessed D2R and CB1 receptor binding levels using [3H] spiperone and [3H] SR141716A respectively. ARG analysis was performed using a -imager.

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